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Route To:

Subject: Heber-Overgaard Forest Health Projects

To: District Ranger, Black Mesa RD, Apache-Sitgreaves NF's

At the request of Gayle Richardson (District Silviculturist) I visited the Black Mesa Ranger District, Apache-Sitgreaves NF's, on October 11, 2007, to discuss and evaluate potential forest health projects on the District. I describe in this letter what bark beetle activity was observed in this area, general existing stand conditions, and make recommendations to minimize future bark beetle impacts.

Heber-Overgaard and Hilltop Wildland Urban Interface Forest Health Projects

The District is proposing to non-commercially thin approximately 150 acres across the Heber-Overgaard and Hilltop Wildland Urban Interface (WUI) projects. The primary objective of the projects is to reduce risk of catastrophic crown fire on the Forest and adjacent private property. Secondary objectives include reducing the risk of bark beetle infestation and increasing tree vigor and growth. Based on a walk through survey of areas to be treated, the stands are dominated by dense, second growth ponderosa pine less than 12 inches dbh (***Figure 1***). Low to moderate levels of dwarf mistletoe infection were observed in some areas as well. Bark beetle activity was currently low within the stands surveyed, but there was evidence of higher levels of activity during the 2002-2003 outbreak. The prescriptions for these WUI projects follow recommendations for treatment under the Sitgreaves Community Wildfire Protection Plan.

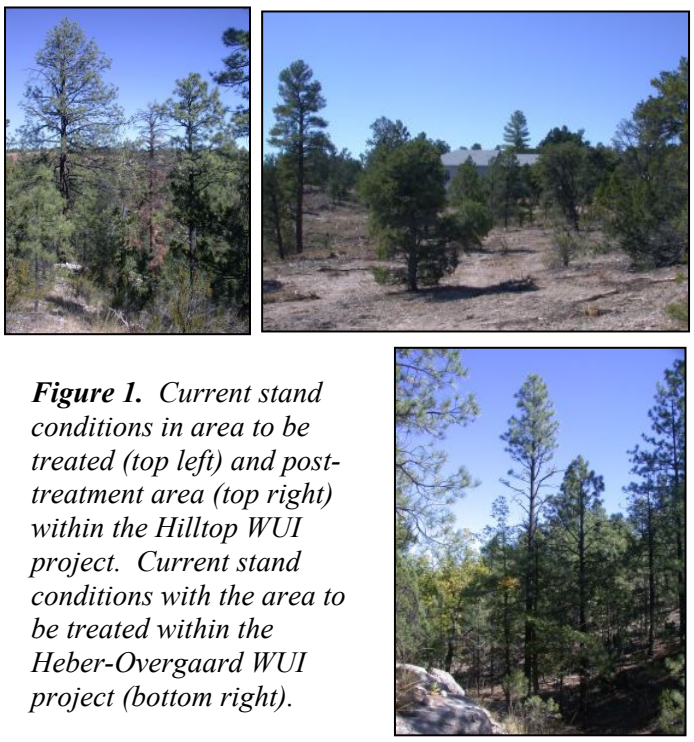

Figure 1. *Current stand conditions in area to be treated (top left) and post-treatment area (top right) within the Hilltop WUI project. Current stand conditions with the area to be treated within the Heber-Overgaard WUI project (bottom right).*

Hilltop WUI. The proposed area to be treated is adjacent to stands already treated. The untreated area is comprised of dense, mixed species (ponderosa pine, piñon pine, junipers) stands. Areas that were treated in late 2006/early 2007 should have low susceptibility to bark beetle attacks (***Figure 1***). The general prescription includes thinning ponderosa pine to 40 to 60 BA with pinyon and juniper crown spacing of 25 to 35 feet. Trees above 12 inches may be removed if needed to meet spacing goals. In pinyon-juniper stands, alligator juniper, pinyon pine, one-seed juniper will have preference for retention

on the site. In pine stringers species preference is ponderosa pine, alligator juniper pinyon pine, one seed juniper. Activity slash will be machine or hand piled with all slash removed within 1/4 mile of private property.

Heber-Overgaard WUI. The proposed area to be treated is adjacent to stands already treated. The untreated area is comprised of dense, mixed species (ponderosa pine, piñon pine, junipers) stands (***Figure 1***). Dwarf mistletoe is patchy throughout the stands in both the understory and overstory. Thinning prescriptions vary by stand but in general will include thinning from below up to 9 inches DBH. On poorer growing sites, junipers will be favored over pines.

Recommendations

The proposed project area for non-commercial thinning treatments will help to reduce the overall susceptibility of stands to bark beetle attack in the long term as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. If limited funding is available, the Hilltop area adjacent to private property should receive the higher priority for treatment.

This project is in compliance with NEPA. The Heber-Overgaard Wildland Urban Interface Project Decision Memo was signed on June 6, 2003 and the Hilltop Wildland Urban Interface Fuels Treatment Decision Memo was signed August, 7, 2006.

High stand densities reduce both individual tree and stand vigor and therefore increases stand susceptibility to mortality from bark beetles (Fettig et al. 2007). Over the past several years the Kaibab NF has seen high levels of ponderosa pine mortality. Competition from smaller trees for water has also greatly increased the mortality risk of scattered large yellow pine. In addition, continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Thinning from below has been experimentally demonstrated to increase the resistance level of the residual mature pine overstory (Feeney et al. 1998, Kolb et al. 2007). However, thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as site quality and precipitation (Fettig et al. 2007). Careful monitoring of beetle populations associated with these thinning projects should be implemented. Parker (1991) provides guidelines for minimizing pine engraver beetle impacts associated with thinning treatments, such as thinning during periods of bark beetle flight inactivity.

Requests for Forest Health Protection prevention/suppression funds should be submitted no later than October 15, 2007. If you have any questions regarding this assessment of current bark beetle activity within the proposed project areas or with the recommendations, please contact Joel McMillin at (928) 556-2074.

/s/ Joel D. Mcmillin
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